

WHAT IS CLAIMED IS:

- 1 1. A component transfer device, comprising:
2 a roller device adapted for moving a liner having a plurality of
3 components removably adhered thereto;
4 a gripper adapted for selectively gripping the liner; and
5 a placement actuator adapted for engaging a desired component of the
6 plurality of components, the placement actuator further adapted for placing the desired
7 component on a target device;
8 wherein the gripper and placement actuator are removably coupled
9 with a coupler, the coupler adapted for moving the placement actuator when the roller device
10 moves the liner.
- 1 2. The component transfer device as in claim 1 wherein the gripper and
2 placement actuator move about a same linear distance when the roller device moves the liner.
- 1 3. The component transfer device as in claim 1 further comprising a base
2 against which the liner is gripped by the gripper, the base comprising a peel edge over which
3 the liner is moved.
- 1 4. The component transfer device as in claim 3 wherein the peel edge is a
2 fixed peel edge.
- 1 5. The component transfer device as in claim 3 wherein the roller device
2 comprises a pinch roller, and wherein the base is disposed between the pinch roller and the
3 gripper.
- 1 6. The component transfer device as in claim 1 further comprising a
2 tension device adapted to provide a back pressure generally resistive to the roller device
3 moving the liner.
- 1 7. The component transfer device as in claim 1 wherein the placement
2 actuator comprises a vacuum head for engaging the desired component.
- 1 8. The component transfer device as in claim 7 wherein the vacuum head
2 comprises a hole pattern having a same general shape as the desired component.

- 1 9. The component transfer device as in claim 1 further comprising a
2 sensor adapted for sensing a position of the desired component on the liner.
- 1 10. The component transfer device as in claim 9 wherein the sensor is
2 further adapted for sensing a position on the liner of a next component to be transferred.
- 1 11. The component transfer device as in claim 9 further comprising a gas
2 jet adapted for directing a gas towards the liner to bias the liner towards a base when the
3 sensor is sensing the position of the desired component.
- 1 12. The component transfer device as in claim 1 wherein the liner
2 comprises a release liner for removably adhering the plurality of components thereto.
- 1 13. The component transfer device as in claim 1 wherein at least some of
2 the plurality of components are adhesive components removably adhered to the liner.
- 1 14. The component transfer device as in claim 1 wherein the placement
2 actuator is adapted to engage the desired component while the desired component is adhered
3 to the liner.
- 1 15. The component transfer device as in claim 1 wherein the actuator is
2 adapted to retain the desired component when the liner is moved over a peel edge.
- 1 16. The component transfer device as in claim 1 wherein the actuator is
2 adapted to rotate the desired component before placing the desired component on the target
3 device.
- 1 17. The component transfer device as in claim 1 further comprising a print
2 head adapted to print on the desired component when the desired component is on the liner.
- 1 18. The component transfer device as in claim 1 further comprising a
2 controller coupled to the roller device for controlling the liner movement.
- 1 19. The component transfer device as in claim 18 wherein the controller is
2 further coupled to the gripper.

1 20. The component transfer device as in claim 1 further comprising a
2 stroke actuator coupled to the placement actuator and adapted for positioning the placement
3 actuator relative to the target device.

1 21. The component transfer device as in claim 1 wherein the gripper and
2 placement actuator are fixedly coupled together.

1 22. The component transfer device as in claim 1 further comprising at least
2 one stop, the stop positioned to engage the placement actuator at a desired location relative to
3 the target device.

1 23. A component transfer device comprising:
2 means for moving a liner over a peel edge, the liner having a plurality
3 of components removably adhered thereto;
4 a placement device adapted for engaging a first component of the
5 plurality of components while the first component is adhered to the liner at a first location;
6 and
7 a gripper adapted for gripping the liner at a second location;
8 wherein the gripper and placement device are adapted for moving
9 about a same linear distance when the liner is moved.

1 24. The component transfer device as in claim 23 wherein the placement
2 device is adapted to retain the first component when the first location passes over the peel
3 edge separating the first component from the liner, the retained first component having a
4 same general shape both before and after removal from the liner.

1 25. The component transfer device as in claim 23 further comprising a
2 sensor adapted to sense a position of a second component on the liner.

1 26. The component transfer device as in claim 23 wherein the placement
2 device is further adapted to place the first component on a target.

1 27. A method of transferring components from a liner to a desired target,
2 the method comprising:
3 positioning the liner at a desired position;

4 engaging the liner with a gripper and with a placement actuator, the placement
5 actuator engaging a desired component that is removably adhered to a first portion of the
6 liner;

7 moving the liner so the first portion passes over a peel edge, wherein the
8 gripper and the placement actuator move with the liner;

9 retaining the desired component with the placement actuator and removing the
10 desired component from the liner when the first portion passes over the peel edge;

11 providing relative movement between the placement actuator retaining the
12 desired component and the desired target, to couple the desired component and the desired
13 target.

1 28. The method as in claim 27 wherein the desired component remains
2 substantially free of deformations when retained by the placement actuator compared to the
3 desired component shape when adhered to the liner.

1 29. The method as in claim 27 wherein retaining the desired component
2 with the placement actuator comprises applying a negative pressure to the desired component
3 using a plurality of vacuum holes in the placement actuator.

1 30. The method as in claim 27 wherein providing the relative movement
2 comprises a movement of the placement actuator.

1 31. The method as in claim 27 wherein providing the relative movement
2 comprises a movement of the target device.

1 32. The method as in claim 27 further comprising sensing a location of the
2 desired component on the liner before engaging the desired component with the placement
3 actuator.

1 33. The method as in claim 32 further comprising directing a gas towards
2 the liner to help hold the liner first portion substantially flat relative to the sensor when
3 sensing the location of the desired component.

1 34. The method as in claim 27 further comprising controlling a second
2 movement of the placement actuator to align the retained desired component and the desired
3 target.

1 35. The method as in claim 27 further comprising retaining a second
2 desired target with the placement actuator, and coupling the second desired target to the
3 desired component while the desired component is adhered to the liner.

1 36. The method as in 35 further comprising coupling the desired
2 component to the desired target after coupling the second desired target to the desired
3 component.

1 37. The method as in claim 27 further comprising printing on the desired
2 component while the desired component is adhered to the liner.

1 38. The method as in claim 27 wherein the gripper and the placement
2 actuator move about a same linear distance when the liner is moved.